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EXAMINER

JAGAN, MIRELLY'S

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/520,960
Filing Date: February 03, 2006
Appellant(s): KOENIGER ET AL.

Fred Pruner
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/13/10 appealing from the Office action mailed

12/9/09.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-5, 8-10, 17, 28, 30, 31, 36, 57, 59, and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson et al in view of U.S. Patent 6,640,900 to Smith.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

2002/0189806	Davidson et al	12-2002
6,640,900	Smith	11-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-5, 8-10, 17, 28, 30, 31, 36, 57, 59, and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson in view of U.S. Patent 6,640,900 to Smith.

Referring to claims 1-5, 8-10, 17, 57, and 60, Davidson discloses a system usable with a subsea well (figure 1), comprising:

a riser (24) extending from a platform (20) adjacent an ocean surface towards an ocean bottom (paragraph 4); and

a landing string (22) extending within the riser (24) from the platform (20) towards the ocean bottom;

wherein the landing string (22) extends in an interval (depth) within the riser (24) from the platform (20) toward the ocean bottom; the landing string (22) extends at least partially within a pressure control equipment (30) at the ocean bottom; a control umbilical is deployed as part of the landing string; the landing string is landed on a landing shoulder located on the pressure control equipment; the landing string is in communication with a well formation; and temperature sensors (64j, 64j in figure 18) are used for measuring temperature in the well (paragraphs 29, 34, 36-40, 59, 63).

Davidson does not disclose a line extending along at least part of a length of the landing string and including a distributed sensor system for sensing the temperature at various points along the length of the landing string; the line extending at least partially within the pressure control equipment; the line comprising a fiber optic line; the distributed sensor system comprising a plurality of sensors distributed along the length of the line; the line being mechanically attached to the landing string; a conduit located proximate the landing string and the fiber optic line located within the conduit; the conduit being within the control umbilical; and the line being attached to the riser.

Referring to claims 28, 30, 31, 36, and 59, Davidson discloses a method usable with a subsea well, comprising

deploying a landing string within a riser, the landing string and riser extending from a platform on an ocean surface towards an ocean bottom;

wherein the deploying the landing string step comprises landing out the landing string at a landing shoulder located on a pressure control equipment; and the landing string is in communication with a well formation.

Davidson does not disclose deploying a line along at least part of a length of the landing string, the line including a distributed sensor system; measuring the parameter at the various measurement points along the length of the landing string; the act of deploying the line along at least part of a length of the landing string comprises deploying the line along an interval of the landing string extending above the ocean bottom such that the distributed sensor system is adapted to sense the parameter at various points above the ocean bottom; the measuring step comprising measuring temperature at the various measurement points along the length of the landing string; the line comprising a fiber optic line and the measuring step comprising transmitting light through the fiber optic line and analyzing the returned back-scattered light to provide a complete temperature profile along the length of the fiber line; the deploying the line step comprises extending the line below the landing shoulder.

Smith discloses a system for measuring a parameter in a sub-sea well, comprising a string (8) extending towards the sea bottom (5); and an optical sensor system comprising a line (11) extending along at least part of a length of the string (8) and including a distributed sensor

system (D) for sensing the parameter at various points along the length of the string, and a conduit (11) located proximate the string (8). The string (8) extends at least partially within a pressure control equipment at the sea bottom, and the line (11) extends at least partially within the pressure control equipment; the line (11) comprises a fiber optic line (D). The parameter measured is temperature; and the distributed sensor system comprises a plurality of sensors distributed along the length of the line. The measuring step comprises transmitting light through the fiber optic line and analyzing the returned back-scattered light to provide a complete temperature profile along the length of the fiber line. The line (11) is mechanically attached to the string (8). The fiber optic line (D) is located within the conduit (11); and the string is landed on a landing shoulder located on a pressure control equipment. The line extends below the landing shoulder. The conduit is a control umbilical deployed as part of the string; and the string is in communication with a well formation (10). The act of deploying the line along at least part of a length of the string comprises deploying the line along an interval of the string extending above the sea bottom such that the distributed sensor system is adapted to sense the parameter at various points above the sea bottom to monitor and control the well (see figure 3; column 3, lines 1-8 and 34-40; column 4, lines 21, 22, 45-48 and 53-56; column 4, line 67-column 5, line 4; column 5, lines 34-37; column 5, line 55-column 6, line 1; column 6, lines 62-66; column 7, lines 30-36 and 53-59; and column 7, line 65- column 8, line 17).

Referring to claims 1 and 28, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system and method of Davidson by using an optical sensor system as taught by Smith in order to obtain temperature measurements along the length of the string in the well, which is disclosed as being desirable by Davidson.

Referring to claim 60, in using the optical sensor system as taught by Smith in the riser of the system of Davidson as stated above, the line will be attached to the riser.

(10) Response to Argument

1. Whether claim 1 is rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson in view of U.S. Patent 6,640,900 to Smith.

Appellant's arguments on page 10 of the Appeal Brief that Davidson fails to teach or render obvious obtaining temperature measurements along the length of the landing string (22) because Davidson discloses using a single temperature sensor are not persuasive because Davidson discloses that it is desirable to measure the temperature down the tubing (paragraph 63) and that tubing runs from the platform (20) to the floor and into the well (paragraph 29), wherein the sensor (temperature sensor) can be located along different parts of the tubing, such as different locations along the string (22), the well tree (31), and the well (paragraph 36). Therefore, Davidson suggests that it is desirable to measure the temperature at various locations from the platform into the well, i.e., distributed temperature measurements.

Appellant's arguments on page 11 of the Appeal Brief that the temperature sensor of Davidson is used for measuring a temperature in the well and not of the interval between the platform and the ocean bottom are not persuasive because Davidson discloses that it is desirable to measure the temperature down the tubing (paragraph 63) and that tubing runs from the platform (20) to the floor and into the well (paragraph 29); and that the sensor (temperature sensor) can be located along different parts of the tubing, such as different locations along the

string (22), the well tree (31), and the well (paragraph 36). Furthermore, Appellant's arguments that Davidson fails to cure the deficiencies of Smith are not persuasive because the rejections are not based on modifying Smith with Davidson, but are based on modifying Davidson with Smith. Appellant's arguments regarding when Smith installs the optical fiber are not persuasive because this feature is not claimed. In addition, Appellant's arguments that neither Smith nor Davidson disclose or render obvious a distributed sensor system that is adapted to sense a parameter at various points along an interval from a platform toward an ocean bottom are not persuasive because Davidson discloses that it is desirable to measure the temperature down the tubing (paragraph 63) and that tubing runs from the platform (20) on the ocean surface to the floor and into the well (paragraph 29), and Smith discloses that the distributed temperature sensor (e.g., "D"; figure 3; column 7, lines 53-column 8, line 2; column 9, lines 33-38) runs from the surface of the ocean (7) to the floor (5) and into the well (figure 1). Lastly, Appellant's arguments that the identifier "D" in figure 3 of Smith refers to a diameter are incorrect because Smith discloses in column 9, lines 33-38 that "D" is a monitoring device (e.g., fiber optic sensor).

Appellant's arguments on page 12 of the Appeal Brief that a skilled artisan in possession of Smith would not have been apprised of an arrangement in which a distributed sensor system senses a parameter at various points along an interval between an ocean bottom and platform are not persuasive because Smith discloses that the distributed temperature sensor (e.g., "D"; figure 3; column 7, lines 53-column 8, line 2; column 9, lines 33-38) runs from the surface of the ocean (7) to the floor (5) and into the well (figure 1). Furthermore, Appellant's arguments regarding when an optical fiber is placed in a production string are not persuasive because this feature, i.e., when the optical fiber is deployed along the landing string, is not claimed. Lastly, Appellant's

arguments that the Office action fails to provide a plausible reason to explain why one of skill in the art would use Smith's optical fiber with Davidson's production string are not persuasive because the Office action states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Davidson by using an optical sensor system as taught by Smith in order to obtain temperature measurements along the length of the string in the well, which is disclosed as being desirable by Davidson, i.e., Davidson discloses that it is desirable to measure the temperature down the tubing (paragraph 63) and that tubing runs from the platform (20) to the floor and into the well (paragraph 29).

2. Whether claim 8 is rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson in view of U.S. Patent 6,640,900 to Smith.

Appellant's arguments on page 12 of the Appeal Brief that the rejection of claim 8 in the final Office action is deficient because the tubing string 11 of Smith does not contain a line that extends along at least part of a length of a landing string, includes a distributed sensor, and is mechanically attached to the landing string are not persuasive because Smith discloses (see figure 1; column 7, lines 53-60; column 9, lines 32-37) that the line (11) extends along at least part of a length of a landing string (8), includes a distributed sensor (optic fiber for measuring temperature distribution), and is mechanically attached to the landing string (by well head 9) (see figures 2 and 3; and column 6, lines 5-7).

Furthermore, Appellant's arguments on page 13 of the Appeal Brief that Smith neither discloses nor renders obvious mechanically attaching a line that contains a distributed sensor

system that is adapted to sense a parameter at various points along an interval from a platform to an ocean bottom to a landing string are not persuasive because Smith discloses (see figure 1; column 7, lines 53-60; column 9, lines 32-37) that the line (11) includes a distributed sensor (optic fiber for measuring temperature distribution) that is mechanically attached to the landing string (by well head 9) (see figures 2 and 3; and column 6, lines 5-7), and the distributed temperature sensor (e.g., “D”; figure 3; column 7, lines 53-column 8, line 2; column 9, lines 33-38) runs from the surface of the ocean (7) to the floor (5) and into the well (figure 1).

3. Whether claim 9 is rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson in view of U.S. Patent 6,640,900 to Smith.

Firstly, it is noted that claim 9 does not depend from claim 1, as stated on page 13 of the Appeal Brief. Claim 9 is dependent on claim 3.

Appellant's arguments on page 13 of the Appeal Brief that the identifier “D” in figure 3 of Smith refers to a diameter are incorrect because Smith discloses in column 9, lines 33-38 that “D” is a monitoring device (e.g., fiber optic sensor). Furthermore, Appellant's arguments that the Examiner fails to cite any disclosure of Smith that teaches or renders obvious a conduit located proximate a landing string such that a fiber optic line is located within the conduit are not persuasive because Smith teaches that the conduit (14/11 of figure 3) is located proximate a landing string (8) such that a fiber optic line (D) is located within the conduit (13/11) (column 6, line 10; and column 9, lines 33-38).

4. Whether claim 10 is rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson in view of U.S. Patent 6,640,900 to Smith.

Appellant's arguments on page 14 of the Appeal Brief that Smith fails to address how the tubing string 11 is deployed in the well or deploying the tubing string 11 with a landing string are not persuasive because Smith discloses this feature in column 5, line 65–column 6, line 9; wherein the conduit (14/11) is within a control umbilical (13) deployed as part of the landing string.

5. Whether claim 17 is rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson in view of U.S. Patent 6,640,900 to Smith.

Appellant's arguments on page 15 of the Appeal Brief that the final Office action fails to explain why the skilled artisan in possession of Davidson and Smith would have derived a line containing a distributed temperature system that extends in the claimed interval above the landing shoulder and below the landing shoulder are not persuasive because Davidson discloses the landing string (22) being landed on a landing shoulder (59) located on a pressure control equipment (BOP 30) (paragraph 33; figure 1); and the line (e.g., 11 of Smith) will extend below the landing shoulder (59) of Davidson because the line will extend into the well.

6. Whether claim 28 is rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson in view of U.S. Patent 6,640,900 to Smith.

Appellant's arguments on page 16 of the Appeal Brief that the final Office action fails to set forth a plausible reason to explain why one of skill in the art in possession of Smith and Davidson would have derived deploying a line such that a distributed sensor system is adapted to sense a parameter at various points above the ocean bottom are not persuasive because Davidson discloses that it is desirable to measure the temperature down the tubing (paragraph 63) and that tubing runs from the platform (20) on the ocean surface to the floor and into the well (paragraph 29), and Smith discloses that the distributed temperature sensor (e.g., "D"; figure 3; column 7, lines 53-column 8, line 2; column 9, lines 33-38) runs from the surface of the ocean (7) to the floor (5) and into the well (figure 1).

7. Whether claim 60 is rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0189806 to Davidson in view of U.S. Patent 6,640,900 to Smith.

Appellant's arguments on page 17 of the Appeal Brief that the Examiner fails to explain why the line 11 of Smith would be attached to Davidson's riser are not persuasive because the line (11) will be attached to the riser (24) of Davidson since the riser is what is used to deploy all of the elements below the water surface. Furthermore, Appellant's arguments that the final Office action fails to set forth any reasoning or evidence probative of why a distributed sensor system must be attached to a riser are not persuasive because Davidson discloses that it is desirable to

measure the temperature down the tubing (paragraph 63) and that tubing runs from the platform (20) on the ocean surface to the floor and into the well (paragraph 29), and Smith discloses that the distributed temperature sensor (e.g., "D"; figure 3; column 7, lines 53-column 8, line 2; column 9, lines 33-38) runs from the surface of the ocean (7) to the floor (5) and into the well (figure 1); wherein the line 11 of Smith will be attached to the riser (24) of Davidson since the riser is what is used to deploy all of the elements below the water surface.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/MIRELLYS JAGAN/

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